

REMARKS

In the Office Action, the Examiner rejected Claims 1-22, which were all of the then pending claims, under 35 U.S.C. 103, as being unpatentable over U.S. patent publication no. 2004/0123,180 (Soejima, et al.) in view of U.S. Patent 7,096,269 (Yamagami, et al.). Claims 1, 8 and 14 were further rejected under the doctrine of obviousness-type double patenting as being unpatentable over claims of copending application no. 10/449,671.

Applicants' undersigned Attorney wishes to confirm a telephone conference with Examiner Chen on March 29, 2007. During this conference, the Examiner indicated that the Office Action of March 16, 2007 is not a final rejection; and to confirm this, the Examiner sent to Applicants' Attorneys a corrected copy of the Office Action Summary expressly stating that the Office Action is not final.

In order to expedite an allowance of the present application, Claims 20, 21 and 22 are being rewritten in independent form and further amended to better define the subject matters of these claims. Claims 1-19 are being cancelled. Applicants expressly reserve the right to file a continuation application or applications for the subject matters of Claims 1-19

The cancellation of Claims 1-19 eliminates the double patenting rejection of Claims 1, 8 and 14 as an issue in the present application.

In addition, for the reasons discussed below. Claims 20-22 patentably distinguish over the prior art and are allowable; and the Examiner is thus asked to reconsider and to withdraw the rejection of Claims 20-22 under 35 U.S.C. 103, and to allow these claims.

As discussed in this application, the present invention provides a user-friendly technique to identify the source and target volumes when copying data; and in particular, for identifying the source volume from which the data are copied, and the target volume to which the data are copied.

To elaborate, with the preferred embodiment of the invention, representations of storage resources are graphically depicted in a single view, and a pair of the storage resources is selected using that single view. Specifically, one of the pair is identified as the source volume and the other of the pair is identified as the target volume.

After this pair is selected but before data are actually copied from the source volume to the target volume, checks are implemented to determine if the pair satisfies predefined rules. If that pair does not satisfy the predefined rules, alert messages are sent to the user. Preferably, a user manually selects the source and target volumes, and, thus, the invention may be practiced to provide a user-friendly procedure that employs the user's knowledge or expertise, to identify appropriate source and target volumes.

The present invention provides a number of specific features to make the technique user-friendly. For example, in the preferred embodiment of the invention, the potential source and target volumes are graphically displayed side-by-side, with the source volumes on one side of the display and the target volumes on the other side of the display. Users may use common computer control to select blocks of source and target resources. The number of source volumes must equal the number of target volumes. To help achieve this, users must first select a source before they select a target. The "Next" button only becomes available when at least one source and one target are selected.

Another preferred feature that helps make the technique user friendly is the use of a confirmation panel that also helps the user switch target volumes. As shown in Figure 3 of the present application, after choosing all volume pairs, the user is presented with a confirmation panel 26, where they can both view and change copy pairs. Copy pairs are presented in a tabular format with source volumes of the pair listed in a source column 30 and target volumes of the pair listed in a target column 32. Users can swap the target volume in one pair with a target volume in another pair within the confirmation panel by selecting the first target volume, selecting the second target volume, and then choosing a "Swap Targets" button.

The prior art of record does not disclose or suggest either of the two of the above-discussed features of the preferred embodiment of the invention.

For example, Soejima, et al, describes a failover type cluster system in which data may be copied from a source volume to a destination volume. The procedure of Soejima, et al. is directed to selecting the destination volume so that the performance of the destination volume is equal to or higher than the performance of the source volume.

To accomplish this, the Soejima, et al. procedure is used to determine whether two conditions are satisfied. The first condition is whether the performance of the destination volume after a failover is equal to or higher than the performance of the source volume before the failover. The second condition is whether the performance of the destination volume is equal to or higher than the performance of the source volume during the copy. If one or both of these conditions is not satisfied, then the storage apparatus in which the destination volume is defined is modified in configuration to satisfy the condition or conditions.

Yamagami, which was cited for the first time in the last Office Action, describes a method and system for selecting paths for storing data. In this procedure, when a primary

storage system copies data to a secondary storage system, that primary system chooses one of a plurality of networks connecting it to the secondary system, depending upon a users' policy. The user can specify which networks are used under various circumstances. Yamagami, though, does not describe the way, in which the confirmation panel is used in the present invention, nor does this reference describe the specific procedure for selecting the source and target volumes, and in particular, preventing the user from selecting a second source volume until after the first target volume has been selected.

Independent Claims 20, 21 and 22 describe the above-discussed features of the preferred embodiment of this invention. For instance, Claims 20 and 22 describe the feature that the pairs of source and target volumes are selected by displaying graphical depictions of the volumes side-by-side with a multitude of source volumes depicted on a first side of the view and a multitude of target volumes depicted in a second side of the view, and by selecting a first source volume, then selecting a first target volume for said first source volume, then selecting a second source volume, then selecting a second target volume for the second source volume, and providing the user from selecting the second source volume until the first target volume has been selected.

Claims 20 and 22 describe the additional step of, after the pairs have been selected, displaying to the user a confirmation panel where the user can both view and change the volumes of said pair, where that confirmation panel comprises a table showing the source volumes on one side and the target volumes on another side. Claims 20 and 22 also describe the further step of the user using that table to swap the target volume in one pair with the target volume in another pair within the confirmation panel.

Claim 21 is drawn to a system for pairing source and target volumes for the purpose of copying data from the source volume to the target volume. Claim 21, specifically, describes

means for selecting a pair of storage resources using a single view that graphically depicts representations of the storage resources, including identifying one of said pair as the source volume and identifying the other of the pair as the target volume. Claim 21 also describes means for implementing checks, after the pair has been selected and before any data has been copied from the source volume to the target volume, to determine if the selected pair satisfies predefined rules.

The other references of record have been reviewed, and these other references, whether considered individually or in combination, also do not disclose or suggest these features of the present invention.

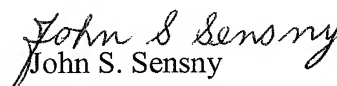
For instance, U.S. Patent Publication No. 2004/0088379 (Aoshima, et al.), Aoshima, et al. discloses a graphical user interface to help a user manage operations on volume pairs, including the mounting of a volume to a host, and the splitting of a volume pair. The user selects a host, specifies that a volume pair be created, and designates the backup host to which the secondary volume is to be mounted.

Aoshima, et al. was cited for its disclosure of a single view that shows storage resources including a source volume and a target volume. This reference, though, does not teach the above-discussed preferred selection process of the present invention, nor the way in which the confirmation panel is used to switch target volumes.

Because of the above-discussed differences between Claims 20, 21 and 22 and the prior art, and because of the advantages associated with those differences, Claims 20, 21 and 22 patentably distinguish over the prior art and are allowable. The Examiner is thus respectfully asked to reconsider and to withdraw the rejection of Claims 20-22 under 35 U.S.C. 103 and to allow these claims.

Every effort has been made to place this application in condition for allowance, a notice of which is requested. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,


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